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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,872

05/30/2006

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1215.004

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12/16/2009

EXAMINER

WILLIAMS, CLAYTON R

ART UNIT

PAPER NUMBER

2457

MAIL DATE

DELIVERY MODE

12/16/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,872	<b>Applicant(s)</b> KIMURA ET AL.	
	<b>Examiner</b> Clayton R. Williams	<b>Art Unit</b> 2457	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Claims 1-20 are pending in this application per amendment.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaufman et al. (7590984: hereinafter Kaufman).

For claims 1, 3, 4, 7 and 11-14, Kaufman discloses a system for the cross-correlation of data, comprising:

a plurality  $n$  of computers  $PC_i$ ,  $n$  being a real number which is equal to or greater than 2, and  $i$  being an integer from 0 to  $n-1$  (col. 1, lines 29-35: “The next logical step in developing computational capability for handling these large problems is to distribute these problems over multiple machines loosely connected in a “grid”.);

wherein said plurality  $n$  of computers  $PC_i$  are communicably coupled via a connector with a switch (col. 1, lines 29-35);

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each of said plurality  $n$  of computers  $PC_i$  further including a storage device configured for storing data  $X_i$  (col. 1, lines 29-35: Each of the connected grid computers contains local storage);

data  $X_i$  being divisible into  $n$  partial data units  $X_i(j)$ ,  $j$  being an integer from 0 to  $n-1$  (col. 4, lines 15-40: The cited passage discloses a distributed modeling algorithm in which portions of a complex biological modeling problem are parceled out to individual grid workstations);

data  $X_i$  being divisible into  $n$  partial data units  $X_i(k)$ ,  $k$  being an integer from 0 to  $n-1$  (col. 4, lines 15-40);

a computer  $PC_k$ , wherein computer  $PC_k$  is configured for cross-correlation processing of partial data  $X_i(k)$  (col. 4, lines 54-58: "If each of the four problem partitions for this example are dispatched to four different machines, then the cells in the outer shell have one or more nearest neighbors that are located on a remote machine.");

wherein each computer  $PC_i$  of said plurality  $n$  is configured-to for a first exchange of a partial data unit with a partner computer chosen from said plurality  $n$  of computers, so that no more than one computer  $PC_i$  is idle during said first exchange (col. 4, lines 58-60: "The problem, as defined, requires that every machine exchange data with machines handling adjacent regions of space at every cycle".); and

wherein each computer  $PC_i$  of said plurality  $n$  is configured for an additional exchange of additional partial data units with a partner computer chosen from said plurality  $n$  of computers, so that no more than one computer  $PC_i$  is idle during said additional exchange (col. 4, lines 58-60).

For claim 2, Kaufman discloses the system of claim 1, wherein each computer  $PC_i$  of said plurality  $n$  is configured to exchange with a partner computer  $n-1$  partial data units when  $n$  is even, and  $n$  partial data units when  $n$  is odd (col. 4, lines 54-58: "If each of the four problem partitions for this example are dispatched to four different machines, then the cells in the outer shell have one or more nearest neighbors that are located on a remote machine.").

For claim 5, Kaufman discloses the system of claim 4, comprising an  $\alpha$  turn,  $\alpha$  being an integer of 0 and more, wherein the  $\alpha$  turn includes partial data units, numbering from  $n \times \alpha$  to  $(n \times \alpha + n - 1)$ , and comprising partial data unit  $Xi(k + \alpha)$ , the partial data unit  $Xi(k + n \times \alpha)$  being located on each computer  $PC_i$ , wherein the computer  $PC_k$  is configured for the cross correlation processing of partial data unit  $Xi(k + n \times \alpha)$  (col. 4, lines 54-58).

For claim 6, Kaufman discloses the data distribution method according to claim 4 or 5, wherein each computer  $PC_i$  of said plurality  $n$  is configured for partner exchange of  $n-1$  partial data units with a partner computer, so that no computer is left idle, when  $n$  is an even number (col. 4, lines 58-60: "The problem, as defined, requires that every machine exchange data with machines handling adjacent regions of space at every cycle".),

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wherein each computer PC<sub>i</sub> of said plurality n is configured for partner exchange of n partial data units with a partner computer, so that no more than one computer is left idle, when n is an odd number (col. 4, lines 58-60: “The problem, as defined, requires that every machine exchange data with machines handling adjacent regions of space at every cycle”.); and

wherein each computer PC<sub>i</sub> of said plurality is configured to exchange partial data units with each partner computer once (col. 4, lines 15-40: The cited passage discloses a distributed modeling algorithm in which portions of a complex biological modeling problem are parceled out to individual grid workstations. As disclosed, the passage envisions a grid wherein unique partial data is exchanged between partners every exchange cycle).

For claim 8, Kaufman discloses a system as in any one of the preceding claims, in which the computers PC<sub>i</sub> of said plurality n are general purpose computers (col. 1, lines 29-35: “The next logical step in developing computational capability for handling these large problems is to distribute these problems over multiple machines loosely connected in a “grid”).).

For claim 9, Kaufman discloses a system as in any one of the preceding claims, comprising a network medium configured for full duplex communication (col. 1, lines 29-35).

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For claim 10, Kaufman discloses a system as in any one of the preceding claims, in which said data are time series data recorded from radio telescopes (col. 2, lines 22-28: The cited passage discloses grid computing systems being utilized to analyze radio telescope data).

For claim 15, Kaufman discloses a system as in one of claims 11-14, comprising a network medium configured for full duplex communications (col. 1, lines 29-35).

For claim 16, Kaufman discloses the system of claim 1, wherein  $n$  is an odd number (col. 4, lines 54-58: "If each of the four problem partitions for this example are dispatched to four different machines, then the cells in the outer shell have one or more nearest neighbors that are located on a remote machine.").

For claim 17, Kaufman discloses the system of claim 1, wherein  $n=2^k + 1$ , wherein  $k$  is an integer greater than 0 (col. 4, lines 54-58).

For claim 18, Kaufman discloses the system of claim 1, wherein  $n=2^k - 1$ , wherein  $k$  is an integer greater than 0 (col. 4, lines 54-58).

For claim 19, Kaufman discloses the system of claim 1, wherein each partial data unit is exchanged only once (col. 4, lines 15-40: The cited passage discloses a distributed modeling algorithm in which portions of a complex biological modeling problem are

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parceled out to individual grid workstations. As disclosed, the passage envisions a grid wherein unique partial data is exchanged between partners every exchange cycle).

For claim 20, Kaufman discloses the system of claim 1, wherein in each data exchange, the volume of the data exchanges remains constant (col. 4, lines 15-40).

### ***Response to Arguments***

Applicant's arguments with respect to the rejection(s) of claim(s) 1-18 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kaufman.

Applicant argues prior art of record does not teach wherein every cycle, a constant volume of data is exchanged once between partner computers. Examiner disagrees. Kaufman, col. 4, lines 15-40, discloses a distributed modeling algorithm in which portions of a complex biological modeling problem are parceled out to individual grid workstations. As disclosed, the passage envisions a grid wherein unique partial data is exchanged between partners every exchange cycle, i.e. the outer interface sections between adjacent cells.

Applicant argues prior art of record does not teach a system wherein no more than one computer remains idle during a data exchange cycle. Examiner disagrees. Kaufman, col. 4, lines 58-60, discloses "[t]he problem, as defined, requires that every



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machine exchange data with machines handling adjacent regions of space at every cycle".

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clayton R. Williams whose telephone number is 571-270-3801. The examiner can normally be reached on M-F (8 a.m. - 5 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Clayton R Williams/  
Examiner, Art Unit 2457  
12/8/2009

/ARIO ETIENNE/  
Supervisory Patent Examiner, Art  
Unit 2457

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